

A NEW *LIRIOMYZA* MINING LEAFLETS OF BLACK LOCUST  
(DIPTERA: AGROMYZIDAE)

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*Abstract.*—*Liriomyza robiniae*, new species, an early season leaflet miner on black locust, *Robinia pseudoacacia* L., is described from Harrisburg, Pennsylvania. Records of larval collections are given for New York, Pennsylvania, Virginia, and West Virginia, and some biological information is presented.

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The larva of *Liriomyza robiniae*, new species, forms a blotch mine (Fig. 1) on the leaflet of black locust, *Robinia pseudoacacia* L. (Fabaceae (=Leguminosae)). Adults were collected in late April in south central Pennsylvania, and larvae were found in May in New York, Pennsylvania, Virginia, and West Virginia. Only one generation is produced annually, the pupae overwintering.

Apparently the only record of any agromyzid feeding on black locust is that of Weaver and Dorsey (1965), who reared three species of Eulophidae (Hymenoptera) from larvae of an unidentified agromyzid leafminer on *R. pseudoacacia* in West Virginia. A conversation with J. E. Weaver, West Virginia University, leaves little doubt that the parasitized larvae he collected were those of *L. robiniae*.

*Liriomyza robiniae* Valley, NEW SPECIES

Figs. 1, 2

Male.—*Head*: Front yellow, sometimes light orange anteriorly, darkened at base of each fronto-orbital bristle, except foremost 1 or 2; ocellar area black; 3 lower fronto-orbital bristles turned mesad; 2 upper fronto-orbitals reclinate, anterior one somewhat the larger; front narrowly raised above eye, slightly more than twice width of one eye at level of anterior ocellus; both vertical bristles in black area, inner one at margin of dark color; parafrontal setulae lacking; gena (jowl) yellow, approximately 0.6 eye height; face yellow; palpi light orange; antenna with 2 basal segments yellow, 3rd segment round, orange, sometimes with light infuscation on outer basal ½;



Fig. 1. Mine of *L. robiniae* in leaflet of black locust.

arista brown, pubescent, slightly longer than antenna, evenly tapering from rather thick base.

*Thorax*: Scutum black, densely gray tomentose with humerus and notopleuron largely yellow, black spot on anterior face of humerus; pleura yellow and black as follows: propleuron yellow; mesopleuron with black largely confined to lower  $\frac{1}{2}$ ; pteropleuron largely yellow; hypopleuron largely black; sternopleuron yellow along dorsal border, broadly around sternopleural bristle, narrowly anterior thereof; scutellum black, gray tomentose, yellow mesally, especially between apical bristles, sometimes only faintly yellowish basally; scutum with 4 irregular rows of acrostichal setulae anteriorly, grading into more regular rows behind transverse sulcus; wing 1.6–1.8 mm long, hyaline, costa extending to M (4th vein), anterior crossvein approximately opposite costal break; last section of Cu (5th vein) 1.4–1.5 $\times$  as long as discal cell; halter yellow; squamal cord and fringe dark brown; legs yellow, coxae and femora partly blackish.

*Abdomen*: Dorsum black, with narrow yellow posterior margin of segments 1–6 and yellow anterior corners of segment 1; postabdomen as in Fig. 2, epandrium yellowish, with yellowish bristles; ventral lobe (surstylus) rounded with a few minute pale triangular scaly bristles; cerci not evident; aedeagus slightly infuscated basally, otherwise colorless, details of distiphallus difficult to distinguish, but pair of narrow approximated processes at apex (Fig. 2B); sperm pump (Fig. 2A) unusually small, on short duct.

*Female*.—External characters similar to male but with 3rd antennal segment sometimes more heavily infuscated and legs darker. Wing length 1.8–2.0 mm.

*Type-Material*.—All specimens have the following locality and host in-

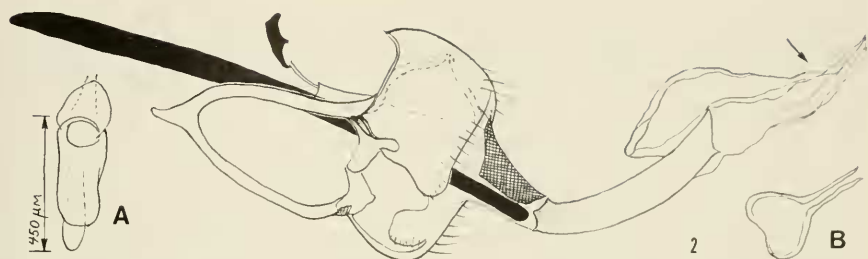


Fig. 2. Postabdomen of *L. robiniae* male, ventrolateral view. Drawn from macerated preparation in water. A, Sperm pump, from microslide preparation. B, Outline of tip of aedeagus as seen in direction of arrow above in dry specimen; not to scale.

formation: PENNSYLVANIA: Dauphin Co., Harrisburg, 2301 N. Cameron St., taken on *Robinia pseudoacacia*. Holotype ♂: 22 April 1981, A. G. Wheeler, Jr. (USNM). Allotype ♀: 30 April 1979, AGW (USNM). Paratypes: 1 ♂, 1 ♀, 25 April 1979, AGW (CU); 2 ♀, 24 April 1980, T. J. Henry, 1 ♀, 23 April 1980, KRV, and 1 ♂ 25 April 1979, AGW (PDA); 1 ♂, 24 April 1979, KRV, and 1 ♀, 25 April 1979, KRV (USNM).

Specimens deposited in the Cornell University Insect Collection, Ithaca, New York (CU); Pennsylvania Department of Agriculture, Harrisburg (PDA); and the National Museum of Natural History, Washington, D.C. (USNM).

Relationships.—*Liriomyza robiniae* is anomalous in the genus *Liriomyza* because of its largely black scutellum, densely tomentose scutum, and post-abdominal structure, especially the reduced cerci, colorless distiphallus that is difficult to examine, and the very small, peculiarly shaped sperm pump. However, a microscope preparation confirms its assignment to *Liriomyza* by the presence of fine, abundant stridulatory spicules on the lateral abdominal membrane of the male. Its only close relative, at least in North America, seems to be a species from an unknown host in California, now in press in K. A. Spencer's comprehensive work on the Agromyzidae of California. That species has a wholly black scutellum and has been given a name referring thereto; it lacks parafrontal setulae and the postabdomen is apparently fairly similar to that of *L. robiniae*. It also differs from *L. robiniae* in having but one upper fronto-orbital bristle, a subshining scutum, and black pleura except for the narrow yellow upper margin of mesopleuron.

Comments.—*Liriomyza robiniae* runs to couplet 38 in Spencer's (1969) key, although specimens do not agree with either choice, *L. kenti* Spencer or *L. nordica* Spencer. In Frick's (1959) key, specimens of *L. robiniae* trace to *L. eupatorii* (Kaltenbach), a leafminer on *Aster* and *Eupatorium* in North America.

Larvae of *L. robiniae* were collected in black locust leaflets at the following localities: NEW YORK: Delaware Co., Rt. 97, 2.6 mi. S. jct. with old Rt. 17 in Hancock, 16 May 1979 and 27 May 1981, KRV; Cadosia, 16 May 1980, KRV; Sullivan Co., Long Eddy, along Rt 97, 16 May 1980 and 27 May 1981, KRV; Tompkins Co., Ithaca, Cornell University, 17 May 1980, A. G. Wheeler, Jr.; Suffolk Co., Long Island, Yaphank, 30 May 1981, AGW. PENNSYLVANIA: Centre Co., Rt. 45 nr. jct. with Rt. 26, betw. Pine Grove Mills & Shingletown, 19 May 1980, AGW & KRV; Dauphin Co., Linglestown, 9 May 1979 and 1 May 1980, AGW & KRV; Clark's Valley, Rt. 325, 18 May 1979, KRV; Wayne Co., Damascus Twp., on road to Callicoon, N.Y., nr. Curtis Nursery, 17 May 1979, KRV. VIRGINIA: Augusta Co., I-81 S., 5.4 mi. N. Rt. 606, Raphine-Steeles Tavern Exit, 10 May 1979, AGW; Montgomery Co., I-81, 2 mi. S. Roanoke Co. line, 26 April 1981, AGW; Lancaster Co., Windmill Pt., 8 May 1981, AGW & KRV; James Co., Williamsburg, Wm. & Mary Campus, 9 May 1981, AGW & KRV. WEST VIRGINIA: Berkeley Co., I-81 Rest Area W. of Potomac River, 10 May 1979, AGW.

Detection of *L. robiniae* has been hindered by the early and ephemeral appearance of the adults and the short larval feeding period. The type-material was collected shortly after leaf flush of black locust in the Harrisburg area, when leaves were less than 4 cm long. In 1979, abandoned mines were found as early as 9 May, and by 21 May no larvae were found in any of the leaflets sampled. Small, heavily mined leaflets dropped from the trees; larger leaflets with mines remained on the trees, but by 29 May the mined areas had begun to dry and drop from the leaflets, thus preventing easy detection of the larval feeding activities. By mid-June little evidence remained to document the mining activities of the larvae.

The collecting records show this species is widespread, and I suspect that additional early-season efforts will yield new distribution records from throughout the native range of black locust. The tree is not native to states and provinces north of Pennsylvania, where it has been naturalized north to Nova Scotia, Quebec, and Ontario (Fernald, 1950). Thus *L. robiniae* probably has been introduced into at least New York State through man's commerce or has followed the tree's movement along highway banks, waste land, and other areas disturbed by man.

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Thomas J. Henry, Systematic Entomology Laboratory, USDA, collected specimens of *L. robiniae*. J. E. Weaver, West Virginia University, Morgantown, shared with me his observations on *L. robiniae*.

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